Canadian Wildlife Service
Western & Northern Region

Endangered Species Section
5 Year Plan
1990–1995

Environment Canada
Canadian Wildlife Service

Environnement Canada
Service canadien de la faune

Canada

CANADIAN WILDLIFE SERVICE

WESTERN & NORTHERN REGION

ENDANGERED SPECIES SECTION

5 YEAR PLAN

1990 - 1995

R. EDWARDS

September 1990

ENVIRONMENT CANADA

Table of Contents

1. INTRODUCTION 3

2. CAUSES OF ENDANGERMENT 5
2.1 Loss of Habitat 5
2.2 Hunting and Trapping 6
2.3 Toxic Chemicals 6
2.4 Other Factors 7

3. MANDATE 8
3.1 Migratory Birds Convention Act 8
3.2 Canada Wildlife Act 8
3.3 World Conservation Strategy 8
3.4 Endangered Species Policy 9
3.5 Canadian Environmental Protection Act (CEPA) 9

4. OBJECTIVES 11
4.1. Endangered Species 11
4.2. Other Wildlife 11

5. RESOURCES 12

6. FUTURE WORK 14
6.1. High Priority 15
6.1.1. Whooping Crane 15
6.1.2. Wood Bison 16
6.1.3. Peregrine Falcon subspecies Anatum 17
6.1.4. Piping Plover 18
6.1.5. Peary Caribou 19
6.1.6. Swift Fox 20
6.2. Medium Priority 21
6.2.1. Western Woodland Caribou 21
6.2.2. Polar Bear 21
6.2.3. Ferruginous Hawk 22
6.2.4. Burrowing Owl 23
6.2.5. Loggerhead Shrike 23
6.2.6. Predator/Prey Studies 24
6.2.7. Prairie Raptor Studies 25
6.2.8. Baird's Sparrow 25
6.3. Low Priority 26
6.3.1. Mountain Plover 26
6.3.2. Eskimo Curlew 26
6.3.3. Trumpeter Swan 27
6.3.4. Black-footed Ferret 27
6.3.5. Greater Prairie Chicken 28
6.3.6. Prairie Long-tailed Weasel 28

7. ADDITIONAL WORK REQUIRED 29

8. SUMMARY 30

CANADIAN WILDLIFE SERVICE
WESTERN & NORTHERN REGION

ENDANGERED SPECIES SECTION

5 Year Plan
1990 - 1995

1. INTRODUCTION

Endangered species are not a new phenomenon and many species have come and gone over the ages. There have been at least 5 major mass extinctions during the last 800 million years which have resulted in the loss of millions of species. For example, one mass extinction which occurred about 66 million years ago, resulted in the disappearance of almost all dinosaurs along with 60 to 80% of other animal species. At the present time, we appear to be in another mass extinction, but this time man, not nature, is primarily responsible for the loss of species. The present mass extinction began about 11,000 years ago when primitive stone-age hunters caused a massive reduction in the mammal megafauna of the world simply by the use of traps, snares and sharp pointed weapons. Many of the large mammals such as the mammoth, mastodon and sabre-toothed tiger, which had managed to survive the last ice age, were eliminated. Since then, increasingly sophisticated hunting techniques have ensured the steady depletion of species until the introduction of the modern firearm and the spread of western colonialism during the last two centuries contributed to another wave of extinctions.

The rate of extinction continues to escalate. More than 50 mammal species and more thaw 100 bird species have disappeared from the world forever since 1600. Not only are individual species disappearing, but whole communities and ecosystems are now becoming endangered and being lost. Habitat degeneration and loss result in endangered spaces, and as endangered spaces increase, so do endangered species and species extinctions. Tropical rain forests are being lost at the rate of 100 acres/minute. In the next 25 years, an estimated one million unnamed and unknown species will be lost from the world for ever. At a rate of one species every fifteen minutes, many of these species are being lost before their value to mankind is ever known.

Endangered species and species extinctions or extirpations are symptomatic of a changing environment. Continuing declines of species numbers indicates that there is a fundamental imbalance in the environment which must be corrected. The balance of nature must be restored or the consequences could well be disastrous. The sum total of all species on earth represent a genetic storehouse of enormous potential and value. Genetic material is being lost, for ever, at an ever-increasing rate,

before its value and usefulness can be determined. For example, 25% of all prescription drugs are derived from tropical rainforest species, yet only 2% of these tropical rainforest species have been checked for their medicinal properties. The endangered species problem is of global dimensions and it must be tackled both in Canada and elsewhere.

Endangered species are of great potential value. They help to maintain genetic diversity thereby meeting one of the objectives of the World Conservation Strategy. They contribute drugs and medicines to improve human health. They are indicators of environmental quality. They are a component of ecosystems where their loss may have ramifications for many other species. They also have a considerable economic value in terms of tourism potential. Finally, endangered species have a symbolic importance to Canadians, who have expressed their concerns for and desire to maintain populations of species threatened with extinction.

The Canadian Wildlife Service, being the foremost wildlife agency in the country, has a national responsibility to ensure that Canadian species of plants and animals do not become extirpated or extinct and that steps are taken to increase population of species in danger to self-perpetuating levels. The purpose of this document, then, is to provide an overview of the Canadian Wildlife Service Western and Northern Region Endangered Wildlife Program, to describe the work being undertaken in this program at the present time and to outline options and directions for future work over the next five years. Resource allocation from within the Service in human and financial terms will also be discussed. This overview is supported by detailed project outlines prepared by project officers for their individual projects.

The Endangered Species (formerly Threatened Species) Section is primarily responsible for implementing those Canadian Wildlife Service (CWS) Western & Northern Region (WNR) projects which deal with endangered wildlife. Included in the section's work are biological surveys to document abundance and distribution of endangered species and their habitats, research to determine causes of endangerment, and projects to reintroduce and reestablish species in the wild. Section officers also play a coordinating and administrative role with respect to establishment and functioning of recovery teams for endangered species.

As well as endangered species, the section also undertakes ecosystem work related to other wildlife (excluding migratory birds) judged to be of international or national significance, such as polar bears, barren-ground caribou and wolves. These programs and projects will be discussed in more detail in later sections.

2. CAUSES OF ENDANGERMENT

Although, on a broader scale, waves of species have come and gone over the last several millennia, the world's complement of species has remained relatively stable with only a slow decline over the last several thousand years, right up until the last two centuries. Particularly over the last two hundred years, man's continuing exploitation of the environment has led to ever increasing rates of species declines, extirpations and extinctions.

In order to stop this trend and to re-establish and rehabilitate species which are endangered, the causes of species declines must be understood and reversed. In general terms, the main causes of species declines in Canada are as follows:

2.1 Loss of Habitat

Habitat change is the primary causes of species declines in the region at the present time. Agricultural cultivation has made the Canadian prairies one of the most altered biomes in North America, if not the world. Almost all of the tall grass prairie has gone, and only 10% of the fescue grasslands and 24% of the mixed prairie remain. Loss of native grasslands has led, directly or indirectly, to ongoing declines in raptors, songbirds, waterfowl, rodents and small carnivores, as well as local extirpations of such species as wolves, grizzly bears, black-footed ferrets and swift foxes. Many prairie species now make the COSEWIC endangered species list and many more, of as yet undetermined importance to mankind, are under consideration. (For example, the rhizomes of the Western Blue Flag plant are currently being investigated for anticancer properties, while the status of the species is being considered by COSEWIC.) Habitat loss has not only resulted in loss of individual species, but whole communities have been lost and ecosystems endangered. When communities are lost, local extirpations of many species may result.

A number of national and provincial initiatives have recently focused on prairie conservation, including World Wildlife Fund's Wild West Program; Alberta's Prairies for Tomorrow; and Saskatchewan's Endangered Species Recovery Fund. The most recent actions to bring attention to the crisis on the prairies are the development and implementation of the Prairie Conservation Action Plan, a plan endorsed by the prairie provinces, Environment Canada and a number of conservation agencies. All agencies have agreed to work together to protect prairie ecosystems from further degradation. The Prairie Conservation Action Plan provides a focus for conservation work on the prairies.

Staff of the Endangered Species Section have played an active role in the development of the Prairie Conservation Action Plan,

and are now involved in promoting the plan among those having an interest in prairie conservation.

The boreal forest is also increasingly becoming impacted by both agriculture, and pulp and paper developments. Loss of forest habitat is sure to result in increases in the numbers of endangered species living in this biome. The distribution and abundance of many boreal species is not well known, and basic research is required to determine species at risk and minimize the impacts of habitat change. There is no coordinated approach between interested agencies, and few conservation programs are in effect to protect species and habitats within the boreal forest.

Within the Arctic, many species have a precarious hold on life, and inclement weather at critical times of the year can be devastating. Industrial exploration and development, coupled with pollution fallout from southern sources may add enough stress that species are unable to maintain populations. The result is that endangered species exist in the remotest areas of Canada, where rehabilitation and recovery programs are very difficult to implement. Research by section staff working in the Arctic is currently being conducted on Peary caribou and polar bears to prevent these species becoming extirpated or extinct.

Although the Endangered Species Section is not directly involved in programs and projects which secure habitat for endangered species, protection of habitat is a fundamental requirement for endangered species recovery and must be an integral part of every recovery plan. Habitat protection is therefore promoted at every opportunity. Endangered spaces, as well as endangered species, must be identified and protected. The Prairie Conservation Action Plan will help considerably on the prairies, but similar plans are needed for the boreal forest and the Arctic.

2.2 Hunting and Trapping

Although hunting and trapping are no longer primary causes for species declines, these activities have driven many species to the brink of extinction and beyond. The great auk, the labrador duck and the passenger pigeon, for example, were all hunted to extinction. Other species such as the bison were almost eliminated by hunting, but were saved at the last moment. Today, there are laws and regulations which limit hunting and trapping and few endangered species are deliberately taken. However, cases of misidentification when hunting, or incidental trapping of non-target endangered species do still occur.

2.3 Toxic Chemicals

Agricultural pesticides are toxic substances deliberately introduced into the environment to control an unwanted life-form. Non-target organisms continue to be impacted by these chemical

toxins, leading to declines in species abundance and distribution. The peregrine falcon (subsp. anatum) was almost eliminated by the effects of DDT, a substance which, although almost completely banned in North America, is still being used in considerable quantities in Latin America where the falcons winter. Section staff have spent considerable effort in researching pesticide contamination in prey of the peregrine falcon in a number of Latin American countries. The burrowing owl is another example of a species presently being seriously impacted by agricultural chemicals.

Other persistent industrial chemicals such as PCB's continue to accumulate in the environment. The role of these chemicals in species declines is unknown.

2.4 Other Factors

In addition to the three primary causes for species declines noted above, there are other factors which have been implicated. For example, introduced diseases (e.g. canine distemper) may reduce wildlife numbers; and introduced competitors (e.g. European starling) may usurp indigenous species through competition for limited habitat.

Many Canadian species are international, annually migrating to the southern US or South America from their Canadian breeding grounds. Habitat loss, hunting and toxic chemical impacts on the wintering grounds can not be directly mitigated by actions in Canada. Global solutions to endangered species problems can only be achieved through international cooperative actions.

3. MANDATE

The mandate for work on endangered species stems from a number of sources, including acts of Parliament, international commitments and departmental policy.

3.1 Migratory Birds Convention Act

The Migratory Birds Convention Act (MBCA) of 1916 confers on the CWS the responsibility for ensuring the preservation and continued well-being of migratory birds. Under the authority of the MBCA, the CWS must take steps to maintain populations of migratory birds and thus prevent species declines which could lead to local or national extirpation or extinction. This act allows the CWS to independently undertake work on migratory birds without involving provincial agencies.

3.2 Canada Wildlife Act

The Canada Wildlife Act (CWA) of 1973 states that "The Minister (of the Environment) may, in cooperation with one or more provincial governments having an interest therein, take such measures as he deems necessary for the protection of any species of non-domestic animal in danger of extinction". Under the CWA, agreements have been made with the prairie provinces and the Yukon Territory to undertake joint reintroduction programs for swift foxes and wood bison. With the cooperation of provincial and territorial agencies, the CWS has also undertaken a captive breeding and reintroduction program for peregrine falcons. This Act provides the base opportunity to work cooperatively on all species throughout Canada as well as internationally.

3.3 World Conservation Strategy

Environment Canada and the CWS endorse the World Conservation Strategy prepared by the International Union for Conservation of Nature in 1980. The World Conservation Strategy proposed three main objectives which must be achieved. These are:

1. To maintain essential ecological processes and life-support systems (such as soil regeneration and protection, recycling of nutrients, and the cleansing of rivers and water bodies) on which human survival and development depends.

2. To preserve genetic diversity so that we keep our options open for breeding new varieties of plants and animals, and developing new drugs.

3. To ensure the sustainable utilization of species and ecosystems, notably fish and wildlife, forests, and grazing lands which support millions of rural communities as well as major industries.

The World Conservation Strategy was followed by another landmark action, when, in 1987, the United Nations World Commission on Environment and Development published "Our Common Future". This initiative was motivated by an awareness that human activities around the world were putting a dangerous strain on global ecosystems. The endangerment and extinction of plant and animal species as a direct or indirect result of mans exploitation of the environment, is one of the most pressing elements in the world crisis described in "Our Common Future",

3.4 Endangered Species Policy

More recently, the need to formalize the CWS commitment to endangered species work has resulted in the drafting of a CWS Endangered Species Policy. The latest draft of this document, currently under development by CWS HQ, states that the CWS will take any reasonable measure to prevent wild animal or plant species in Canada from becoming extinct. The draft Policy further states that in selecting species to which effort will be directed, CWS will normally be guided by the listings and designations of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The Canada Wildlife Act led to the establishment of COSEWIC in 1977. This committee annually publishes a list of endangered species in Canada, each species being categorized with respect to its level of endangerment. The species of wildlife which receives the attention of the Endangered Species Section are almost all found on the COSEWIC list. The exceptions being the three mammals noted above.

The 1989 COSEWIC Endangered Species list contains those Regional species of wildlife shown on page 10.

3.5 Canadian Environmental Protection Act (CEPA)

The Canadian Environmental Protection Act, an Act respecting the protection of the environment and of human life and health, may provide further opportunities to protect endangered species. This Act has a number of elements including:

- provisions to regulate federal works, undertakings and federal lands and waters, where existing legislation administered by the responsible federal department or agency does not provide for the making of regulations to protect the environment;

- provisions to create guidelines and codes for environmentally sound practices as well as objectives setting desirable levels of environmental quality

Advice and input regarding endangered species will be required to fulfil the above aspects of CEPA.

COSEWIC List - 1989

Mammals	Birds
Extirpated:	
Black-footed Ferret	
Swift Fox	
Endangered:	
	Eskimo Curlew
	Greater Prairie Chicken
	Mountain Plover
	Peregrine Falcon (anatum)
	Piping Plover
	Whooping Crane
Threatened:	
Peary Caribou	Burrowing Owl
Prairie Long-tailed Weasel	Ferruginous Hawk
Wood Bison	Loggerhead Shrike
	Peregrine Falcon (tundrius)
	Baird's Sparrow
Vulnerable:	
Western Wolverine	
Rare:	
Black-tailed Prairie Dog	Barn Owl
Grey Fox	Caspian Tern
Plains Pocket Gopher	Cooper's Hawk
Western Woodland Caribou	Eastern Bluebird
	Great Grey Owl
	Ivory Gull
	Least Bittern
	Red-shouldered Hawk
	Ross's Gull
	Trumpeter Swan

4. OBJECTIVES

The overall goal of the Endangered Species program is to maintain and increase genetic diversity within the fauna and flora of the Region. This goal can primarily be achieved by influencing decisions on land use and therefore will require the close cooperation of public and private land holders, users and other stakeholders. This overall goal can be translated in to a number of objectives which are closely aligned to the CWS Endangered Species Policy and the World Conservation Strategy. These objectives can be prioritized as follows:

4.1. Endangered Species

1. To prevent the extinction of uniquely Canadian species or subspecies of wildlife which are not found elsewhere.

2. To prevent the extirpation of Canadian species, subspecies or populations of wildlife.

3. To conduct population surveys and research to document and determine causes of endangered species declines.

4. To promote the conservation of endangered communities, ecosystems and habitats.

5. To foster cooperation between all interested stakeholders, including federal and provincial wildlife agencies, universities, and nongovernment organizations in Canada and other countries.

6. To promote a public awareness of the value and benefits of endangered species and endangered communities and of the need to protect them from extinction, extirpation or degradation.

7. To promote and participate in the development and implementation of recovery plans for endangered species.

8. To reestablish wild self-sustaining populations of wildlife which have been extirpated from Canada, but exist elsewhere.

4.2. Other Wildlife

1. To administer international agreements respecting wildlife of concern (e.g. International Polar Bear Agreement).

2. To conduct research on wildlife species of international and national concern.

3. To promote the wise use and management of wildlife species of international and national concern.

5. RESOURCES

The Endangered Species Section currently is staffed by five research scientists, five biologists, six technicians and a section head, making a total of 17 people. The annual approved section operating budget for the previous four years plus the current year, is shown below:

1986/87	$246K
1987/88	$235K
1988/89	$285K
1989/90	$245K
1990/91	$255K

These figures are, however, misleading and do not reflect the actual expenditures made by the section. In some years, year-end funding has almost equalled the annual section budget, in others, levies and cuts have considerably reduced the budget, while at other times, vote-netted revenue and third party recoveries have considerably augmented the basic allocation. Uncertainties in budget allocations for future years increases the difficulties of program and project planning.

The resources allocated among the various projects for the fiscal years 1989/90 and 1990/91 are shown in Table 1. Note that some Endangered Species work is done by other sections, including work on Trumpeter Swans (COSEWIC - Rare) and Loggerhead Shrikes (COSEWIC - Threatened).

Almost all projects are carried out cooperatively with some combination of federal agencies, provincial agencies, universities, and/or nongovernment organizations (NGOs). This cooperative approach means that often the CWS can initiate and direct an endangered species project, but only contribute a small share of the project cost. Put another way, each dollar spent by CWS on endangered species recovery is matched by anywhere from two to five or more dollars from other sources. (A good example is a piping plover survey project undertaken in 1988, where CWS contributed $2K; World Wildlife Fund - $2K; Elsa Wild Animal Appeal - $2K; and Saskatchewan Natural History Society - $750). Endangered Species recovery projects are popular with the Canadian public and are always newsworthy. Through cost shared projects, the public gets good value from the federal funds spent on these endangered species projects.

Table 1

Officer	1989/90 PYs	1989/90 $(K)	1990/91 PYs	1990/91 $(K)	Project	COSEWIC status
Edwards	1.25	13	1.50	13	Section Head	-
Kuyt	1.00	25	1.00	27	Whooping Crane	Endangered
Holroyd	2.80	23	2.80	20	Peregrine Falcon	Endangered
Holroyd	1.20	2	1.20	21	Prairie Raptors	Threatened
Thomas	0.30	5	--	--	Barren-ground Caribou	Not listed
Thomas	1.20	10	1.25	15	Woodland Caribou	Rare
Stirling	3.00	46	3.00	46	Polar Bears	Not listed
Reynolds	1.50	35	1.50	27	Wood Bison	Threatened
Miller	1.00	35	1.00	35	Peary Caribou	Threatened
Carbyn	1.25	27	1.25	27	Swift Fox	Extirpated
Carbyn	0.50	4	0.50	4	Wolf/Coyote	Not listed
Goossen	1.00	15	1.00	15	Piping Plover	Endangered
Barry	1.00	5	1.00	5	Biometrician	-
Total	17.00	245	17.00	255		

Additional costs for the 1990/91 fiscal year are estimated as follows:

Salaries	$918K
Capital	$ 15K
Overhead	$ 34K

The Overhead costs include rental space for laboratories and offices in the Forestry Building, plus photocopier and telephone charges.

6. FUTURE WORK

Over the last 5 years, much of the sections work has involved programs to reintroduce and reestablish endangered species. The CWS has continued to operate a captive breeding facility for peregrine falcons at considerable cost in terms of manpower and fiscal resources. During this time, the CWS has also supported a swift fox captive rearing facility and a number of wood bison captive breeding facilities. In all these cases, the CWS owns the captive animals involved and is therefore ultimately responsible for their disposition which may again involve considerable expense as captive populations increase and surplus animals need to be moved. Over the next few years, CWS will move to transfer management control of captive wildlife held in breeding facilities directly to the facility or other agency, thus relieving CWS of the responsibility for placing surplus animals. Breeding facilities would then be free to trade or sell surplus stocks as the need arose.

Future captive breeding projects for endangered species will not be financed by the CWS, nor, in most cases, will CWS be the sole owner of the captive animals. Future captive breeding facilities will be privately owned and operated, and the animals owned by the provincial government or in joint ownership with the CWS. An example is the proposed captive breeding facility for whooping cranes, where the captive facility will be owned and operated by a zoo, while ownership of the birds will be held jointly by the US Fish & Wildlife Service and the CWS.

The future direction of Endangered Species work will shift from a focus at the species level, to more involvement at the ecosystem level. Endangered species should not be researched in isolation, but as a component of an ecosystem. Projects which address endangered ecosystems will be encouraged, since ecosystem imbalances are one of the major causes of species declines. Restoration of ecosystems will not only benefit the endangered species therein, but will also help prevent other species therein from becoming endangered.

An example of the ecosystem approach is the prairie raptor project recently initiated by section staff. In this project, research is being conducted which will result in the integration of the habitat needs of prairie falcons into current and future land practices in southern Alberta. If the habitat requirements for the prairie falcon and other prairie species can be provided through integrated land use management, then populations of these species can be maintained. More projects of this nature are expected to be initiated in coming years, particularly where habitat losses are causing species declines. Such work could be undertaken for such species as piping plovers, prairie chickens and burrowing owls on the prairies.

Finally, the key to a successful Endangered Species program will be in coordinated and cooperative approaches to solving problems. Landowners and landholders in particular, along with all other interested stakeholders must work together with federal and provincial wildlife agencies to ensure survival of endangered wildlife. The section staff will therefore participate fully in setting up recovery teams and developing and implementing recovery plans. Coordination and cooperation are required between the federal and provincial wildlife agencies and with nongovernment organizations and universities in Canada. In addition, cooperative ventures will be undertaken with US federal and state agencies to work with species of mutual concern.

The shift to a more ecosystem orientated approach will take a number of years to fully implement. In the meantime, many species orientated projects must be maintained until the species in question becomes rehabilitated to the extent that it can continue its recovery unaided.

6.1. High Priority

Projects within this section are high priority because of the low species numbers, high public profile or high probability of success.

6.1.1. Whooping Crane

COSEWIC status - Endangered Population trend - increasing

Canadian population - 143 Total population - 204

Whooping crane numbers have increased considerably in recent years, and, although far from being out of danger, the immediate threat of extinction appears to have passed. With only one wild breeding and migrating population in existence, the whooping crane is still extremely vulnerable to cataclysmic events such as a storm or fire in the breeding range, contamination of the winter range, or an outbreak of disease. The species is managed under an international agreement with the United States and a recovery team and recovery plan are in place. A captive breeding flock at Patuxent, Maryland, has recently been split, establishing a second flock at the International Crane Foundation facility at Baraboo, Wisconsin. A wild, migratory flock has been established at Greys Lake, Idaho, but breeding efforts within this flock have not met with success. In the US, the cross-fostering experiments are expected to continue at the Baraboo facility, and a wild non-migratory flock may be established in Florida, while in Canada, establishment of a captive flock at a zoo is a distinct possibility.

Future plans:

- Continue monitoring of the birds in and around Wood Buffalo National Park;
- Continue the annual egg pick up to provide birds for future projects;
- Provide assistance and advice to establish a captive flock in Canada;
- Develop a proposal for the first releases of a wild migratory flock in Canada by 1994.

Resource implications:

- The resource requirements are expected to remain stable over the next several years, but could increase considerably at the time of initiation of a wild Canadian flock. Such an undertaking will require active support and involvement of recovery team partners.

6.1.2. Wood Bison

COSEWIC status - Threatened Population trend - increasing

Canadian population - about 2700 Total population - about 2700

The wood bison is a uniquely Canadian subspecies, not being found elsewhere. The remarkable recovery of the wood bison from 42 translocated animals in the 1960's has led to it being downlisted on the COSEWIC list from the Endangered to the Threatened Category, since there is no longer any immediate threat of extinction. A recovery team is in place and a recovery plan has been drafted for this species. Four geographically distinct herds of at least 200 head are required before the wood bison can be removed from the COSEWIC list.

The Mackenzie Bison Sanctuary free-ranging wood bison herd now numbers well over 2000 animals. The captive Elk Island herd numbers about 300 and has been used to establish small free-ranging herds in the Yukon and in Nahanni, as well as captive herds awaiting release in northern Manitoba and northern Alberta. In addition, a number of zoos and game farms hold small numbers of captive animals.

Future Plans:

- Supplement releases of wood bison in the Yukon and Nahanni to ensure these herds meet the population requirements for delisting;
- Reevaluate the appropriateness of establishing a wild herd of wood bison in Manitoba;
- Review the EARP Panel Report on the WBNP disease issue and

take whatever steps are required to implement recommendations;
- Establish a free-ranging herd of wood bison in northern Alberta;
- Relinquish ownership of wood bison held in zoos and game farms.
- Reevaluate the status of wood bison with a view to downlisting to rare or removal from the COSEWIC list.

Resource implications:

- Provided that ownership of zoo and game farm wood bison is relinquished in the near future, the resource requirements are likely to remain stable for the next several years. However, the outcome of the EARP hearings may require the CWS to become involved in implementing the Panel decision, which may temporarily require additional resources. Special funding will be required if active management is proposed. Otherwise, the wood bison program is likely to be phased out as the subspecies becomes established in several wild herds. CWS involvement in the wood bison project is therefore expected to be terminated by the mid 1990's.

6.1.3. Peregrine Falcon subspecies Anatum

COSEWIC status - Endangered Population trend - slow increase

Canadian population - <200 Total population - unknown

Canadian populations of the peregrine falcon subspecies anatum were extirpated except for a small area in northern Alberta as a result of the agricultural use of DDT. In response to this decline, the CWS established a captive breeding facility at Wainwright which annually produces about 80 young peregrine falcons for release across Canada. This facility is expensive to operate and maintain and could be phased out within about 5 years. The first releases of captive reared peregrines took place in 1975 and to date, approximately 650 birds have been released. Two other (non-CWS) breeding facilities are coming on stream and producing young peregrines.

The reintroduction of the peregrine falcon has not met with great success. The return rate for one-year old birds is estimated to be only 10%. Birds wintering in Latin America are still exposed to high levels of DDT and its derivatives in their prey, and this leads to continuing reproductive problems. Further research is required to document problems in the wintering areas and confirm that these problems are hindering the successful reestablishment of peregrine falcons in Canada. A recovery team has been formed, a recovery plan approved, and the plan is being implemented.

Future Plans:

- Continue to operate the Wainwright facility until demand for young birds can be met by other institutions (5 years);
- Continue monitoring contamination of prey species in Latin America;
- Continue to coordinate implementation of the recovery plan;
- Coordinate the 1990 survey of wild peregrine falcons;
- Pursue a socio-economic solution to the Latin American pesticide problem.

Resource implications:

- Stable for the Wainwright facility at the present time. The project will be reviewed in late 1990 and a decision made to continue for a further limited period or phase out the captive rearing facility.
- Resources for the Latin American program should be increased. This national concern will require broad constituency support.

6.1.4. Piping Plover

COSEWIC status - Endangered Population trend - decreasing

Canadian population - about 1470 Total population - about 4000

The piping plover has suffered declines in population to the point where it is in serious trouble. Of the two remaining separate populations of piping plover in Canada, the atlantic population contains about 470 birds and the prairie (including part of Ontario) population about 1000 birds. Continuing declines in numbers of this species result from loss of habitat and human disturbance of nesting areas. The CWS has participated in efforts to determine the distribution and abundance of this species over the past several years. These surveys must continue as a high priority, so that critical habitat can be identified and protected. The CWS has also conducted surveys to determine nest success and has documented high chick mortality. A recovery team has been formed and a recovery plan has been drafted.

Future Plans:

- Continue surveys to document distribution and abundance;
- Participate in the 1991 International Survey;
- Monitor populations and productivity at specific sites;
- Complete and publish a Who's Who on piping plovers;
- Complete and get approval for the recovery plan.
- Research the causes of low chick survival.

Resource Implications:

- Resource requirements for distribution and abundance surveys will remain stable, except that some additional funding will be required for the 1991 surveys.
- A research program to determine causes of low chick survival would require a research scientist and a budget of $20K per year for 5 years.

6.1.5. Peary Caribou

COSEWIC status - Threatened Population trend - decreasing

Canadian population - about 3500 Total population - about 3500

The Peary caribou is a uniquely Canadian subspecies of caribou, which is now only found in the arctic islands. Over the past 26 years, numbers have drastically declined from a 1961 estimate of almost 26,000 to an estimated 3300 - 3600 in 1987. The cause of this decline is thought to be related to severe weather events. Hunting of caribou has been voluntarily curtailed. The extent to which man-induced changes in the arctic environment including climatic change and pollution have contributed to the decline of the species is not known. A new status report was prepared for COSEWIC in 1989. The report recommends the status of Peary caribou be upgraded from Threatened to Endangered.

Future Plans:

- Continue research on Peary caribou to determine interisland movements; factors affecting the selection of range and feeding sites; forage utilization; and mortality.
- Recommend reclassification of Peary caribou to the Endangered category.
- Develop recommendations for management strategies to help conserve the species.
- Determine population status in the mid 1990's.
- A recovery team has been identified and will become active in 1990 under the leadership of the GNWT.

Resource Implications:

- The A-base resource allocation to this project is inadequate. The project remains viable solely on the basis of year-end funding. In the event that year-end funding is lost, the resource allocation would have to be increased considerably or the project would be cancelled.
- Research work on Peary caribou is expected to continue for a number of years to provide a sufficient database for species management and protection.
- Needs identified through the recovery plan will allow for

better coordination of funding commitment by all partners concerned.

6.1.6. Swift Fox

COSEWIC status - Extirpated Population trend - stable (US)

Canadian population - <50 wild Total population - unknown

Since the swift fox is not endangered in the US, and additionally, since the swift fox was historically only marginally established in Canada at the edge of its range, attempts to reintroduce this species would normally have a low priority. However, the reintroduction program was initiated with experimental releases in 1983 and since then, has built expectations in the minds of the public in general and its corporate sponsors in particular, so that it must remain a high priority for the next few years. So much effort has already been expended by numerous individuals and agencies, the program must exhaust all possibilities for success before it is terminated.

The releases to date must be viewed as experimental attempts to determine the feasibility of reestablish wild swift foxes and a number of techniques have been tried. These feasibility experiments have not been particularly successful to date and several other experimental techniques including spring releases and releases in less arid areas need to be evaluated. Once these are completed, over the next two to three years, the recovery team will be in a position to determine if reestablishment of swift foxes is feasible and if so, to draft a recovery plan.

Future Plans:

- Release approximately 30 foxes in spring, 1990.
- Maintain funding of the Wildlife Reserve of Western Canada facility until August 1990.
- Continue research on the feeding strategies of released foxes.
- Continue release of foxes in the MacIntyre Ranch area.
- Continue releases over the next two years and evaluate success.
- Lead preparation of a recovery plan for completion in 1990. Update and revise the plan in 1992 to reflect results of current experimental and research work.

Resource Implications:

- Maintain present level of funding for the next two years.
- If after this time, the project proves to be unfeasible, the project should be terminated and no further funds will be required.
- If the project is feasible, funding will be required for a

further 3 - 5 years with sharing arrangements concluded with recovery plan partners.

6.2. Medium Priority

Projects in this category involve species which are not close to extinction, have less public support or are less likely to be successful.

6.2.1. Western Woodland Caribou

COSEWIC status - Rare Population trend - decreasing

Canadian population - unknown Total population - unknown

The western woodland caribou, an isolated population of the subspecies woodland caribou, is found in the mountainous regions along the continental divide in Alberta and British Columbia. Of particular interest is the occurrence of the animal in western Alberta, including Jasper National Park, and adjacent British Columbia, where caribou numbers seem to be declining. A cooperative multiagency study has been initiated to determine causes of decline and recommend management strategies to preserve the population. The study was initiated in 1988 and is expected to terminate in 1993. CWS involvement will be restricted to conducting surveys related to availability and use of vegetation, and habitat types and uses in relation to snow.

There may be a need for a recovery team to be set up once the current studies are completed.

Future Plans:

- Continue participation in the cooperative research project and sample habitats for forage qualities, use by caribou, canopy type and age, and snow characteristics.

Resource Implications:

- Resource requirements are expected to remain at $15K/year for 91/92.

6.2.2. Polar Bear

COSEWIC status - Not listed Population trend - stable

Canadian population - unknown Total population - unknown

The polar bear is not listed on the COSEWIC endangered species list, however, Canada is a signatory to the International

Agreement for the Conservation of Polar Bears and therefore, must take steps to protect and conserve this international resource. CWS has been involved in conducting research on polar bears over the past 10 years and has provided leadership for the Polar Bear Technical Committee, national coordination and housing for the national polar bear database. These activities are expected to continue indefinitely.

Future Plans:

- Continue to provide national leadership and coordination to administer the International Polar Bear Agreement.
- Continue studies to determine the importance of polynyas to polar bears in the high arctic.
- Complete (by 1991) the study to determine the age and sex specific survival rate for polar bears in western Hudson Bay.
- Complete (by 1992) the study to determine the fidelity of female polar bears to denning areas.
- Continue to coordinate with HQ on the matter of toxic contaminants monitoring.

Resource Implications:

- Resource allocations must be maintained at or above current levels to ensure viability of the polar bear project.
- Year end funding is essential to the project. If not available, the project allocation would need to be doubled.

6.2.3. Ferruginous Hawk

COSEWIC status - Threatened Population trend - recent increases

Canadian population - unknown Total population - unknown

Ferruginous hawk have declined by 50% of their former numbers and have been lost from 40% of their former range, although recent surveys have shown an increase of numbers in Alberta. There is a need to determine the limiting factors for this species through research. A recovery team has been formed and a recovery plan has been drafted.

Future Plans:

- Determine if habitat requirements, prey base, nest site availability, fledgling survival or winter survival are limiting recovery of this species.
- In cooperation with other stakeholders, finalize and implement the recovery plan.

Resource Implications:

- The minimal budget of $2K/year should be increased to at least $15K/year to allow meaningful work to be done on this species.

6.2.4. Burrowing Owl

COSEWIC status - Threatened Population trend - decreasing

Canadian population - unknown Total population - unknown

The burrowing owl continues to decline in Canada and research is needed to determine limiting factors preventing recovery. The agricultural use of carbofuran to control grasshoppers has been implicated in declines of burrowing owls. The wintering areas of prairie burrowing owls are unknown. A recovery team has been set up and a recovery plan has been drafted.

Future Plans:

- Conduct research to determine the extent to which winter survival, suitable nesting habitat, prey base and fledgling survival are limiting recovery of burrowing owls in Canada.
- Finalize and implement the recovery plan.

Resource Implications:

- The project has been poorly funded from CWS A-base plus funds from the Latin-American Program (CWS-HQ).
- The project requires at least $15K/year over several years to conduct meaningful research on burrowing owls.

6.2.5. Loggerhead Shrike

COSEWIC status - Threatened Population trend - decreasing

Canadian population - <20,000 Total population - <100,000

Although clearing and agricultural development of the prairies initially resulted in increases in loggerhead shrike numbers, recent declines have lead to its classification as Threatened by COSEWIC. There is a need to continue surveys to determine distribution and abundance and to conduct research to determine factors limiting recovery of this species. A draft recovery plan has been produced and a recovery team is being set up.

Future Plans:

- Continue surveys to determine distribution and abundance.

- Conduct research to determine reproduction in relation to habitat.
- Finalize and implement the recovery plan.

Resource Implications:

- Current levels of funding ($8K/year) should be maintained until limitations to recovery are identified.
- Acceptance of the recovery plan will require commitment from agencies to implement the recommendations.

6.2.6. Predator/Prey Studies

COSEWIC status - N/A Population trend - N/A

Canadian population - N/A Total population - N/A

Although strictly under Provincial and Territorial jurisdiction, both wolves and coyotes can be the source of politically high profile concern. There is a need to maintain expertise on these species so that the CWS can speak authoritatively and without bias about canid issues and as well can ensure scientific comprehension of the role and status of higher carnivores in the various ecosystems. In addition CWS has for many years provided advice to the Man and Biosphere Committee responsible for the Riding Mountain National Park Biosphere Reserve. This advice stems from knowledge gained from 12 years of research on predator/prey relationships in the Park and adjacent areas. The project is expected to continue indefinitely.

Future Plans:

- Maintain expertise in predator/prey interrelationships.
- Continue research on coyote/prey interactions around Riding Mountain National Park.
- Continue research on wolf/bison interactions in Wood Buffalo National Park.
- Provide advice to provincial government agencies and others on wolf management.

Resource Implications:

- A minimal budget of $4K/year is currently provided for work on predator/prey studies which is supplemented by other agencies.
- A more realistic budget would be $10K to help support graduate student research.

6.2.7. Prairie Raptor Studies

COSEWIC status - N/A Population trend - N/A

Canadian population - N/A Total population - N/A

The objective of this multiagency project is to integrate the habitat needs of prairie falcons into current and future land practices in southern Alberta. In support of the goals of the World Conservation Strategy and the Prairie Conservation Action Plan, the study will recommend ways that land owners and managers can incorporate the needs of wildlife on upland habitats into their land use activities. This research project will establish the critical foraging habitats of the prairie falcon, determine the habitat requirements of the falcon's prey, and evaluate the compatibility of current land management with wildlife needs. Integrated land management is the key to successful wildlife populations on private lands.

Future Plans:

- Complete the four year research project on prairie falcons.
- Determine effects of various land use practices on falcons and recommend approaches for land use integration.
- Provide advice to agricultural agencies through brochures and workshops.
- Determine the effect of the public relations efforts on future population trends of prairie falcons.

Resource Implications:

- Budget requirements are expected to remain constant over the four year project at about $10K per year.

6.2.8. Baird's Sparrow

COSEWIC status - Threatened Population trend - declining

Canadian population - unknown Total population - unknown

Baird's sparrow is the latest addition to the COSEWIC list. A bird of the mixed grass prairies, it appears intolerant of over grazed conditions and cultivation. Although still locally common in Alberta, it has disappeared from much of its range and declined to 5% of its former numbers. A recovery team is being organized and a recovery plan will be drafted over the next year. Project proposals will be developed to address concerns regarding this sparrow.

6.3. Low Priority

Projects in this category deal with species with relatively safe population numbers, are of little public interest or stand little chance of success.

6.3.1. Mountain Plover

COSEWIC status - Endangered Population trend - stable (US)

Canadian population - <12 Total population - up to 200,000

The mountain plover occurs at the fringe of its range in southern Alberta, where occasional nests are found. It was never more than a marginal species in Canada, while in the US, it is not endangered. It should more properly be classified as "Vulnerable" since this term applies to a species which marginally exist in Canada at the fringe of its range. A recovery team and recovery plan are required to be developed by fall, 1991. There are no plans for research work on this species at the present time.

6.3.2. Eskimo Curlew

COSEWIC status - Endangered Population trend - unknown

Canadian population - unknown Total population - <50

The Eskimo curlew, although once commonly found breeding in the western arctic, has been reduced in numbers to the point where for all practical purposes it is non-existent. Sporadic sightings of this bird are occasionally made on the wintering grounds or during migration. No clearly documented and undisputed sightings of birds on the breeding grounds in the western arctic have been made in recent years, although potential breeding areas have been checked by experienced researchers of the CWS over several years.

Until such times as positive proof is obtained of the presence of breeding or migrating Eskimo curlews, the CWS will not conduct further searches for these birds. However, those researchers working in areas historically used for nesting by Eskimo curlews are encouraged to watch out for the presence of these birds, and if found to photographically document their occurrence. In the event that an Eskimo curlew nest is found in the region, the CWS will attempt to protect the area to ensure survival of the nest and fledging of the offspring. Further work in searching for more individuals may then be undertaken. A Recovery Team and Recovery Plan are required to be developed by fall, 1991.

There has been recent interest in the US in establishing a

working group to determine the status of the Eskimo curlew. Canada is participating in this groups activities. A recent RENEW decision requires that a recovery team and recovery plan be developed by 1991.

6.3.3. Trumpeter Swan

COSEWIC status - Rare Population trend - increasing

Canadian population - 1600 Total population - 16,000

Careful management, protection of habitat and transplant programs have resulted in increased numbers of trumpeter swans, now totalling about 16,000. The CWS is involved a transplant program to establish trumpeter swans in the Elk Island National Park. The program is expected to continue for several more years. The program has received good publicity, and may provide additional breeding habitat for the birds. This work is carried out by the Habitat Section.

6.3.4. Black-footed Ferret

COSEWIC status - Extirpated Population trend - increasing (US)

Canadian population - 0 Total population - 124

No known wild populations of black-footed ferrets exist either in Canada or the US. A captive breeding program in the US is showing signs of success and plans are being made to reintroduce the animal into the wild when captive populations have reached sufficient size. Animals may be available for a reintroduction program in Canada by the mid 1990's.

There have been occasional reports of black-footed ferrets seen in the wild in southern Saskatchewan and southern Alberta over the past few years. These reports suggest that some animals may still exist in the wild in Canada. A public awareness program was conducted in 1988. This resulted in several more reports of sightings in the southern prairies. There is a need to conduct follow-up searches in these areas to confirm the existence of this species.

Reports of black-footed ferrets in Waterton Lakes National Park have been thoroughly investigated by Canadian Parks Service and have proved fruitless.

6.3.5. Greater Prairie Chicken

COSEWIC status - Endangered Population trend - declining

Canadian population - unknown Total population - unknown

Once very abundant on the prairies during the post bison/pre settlement era (1880 - 1920), the greater prairie chicken has now been reduced over its entire range and is now believed extirpated in Canada. If recovery is to be attempted there is a need to conduct research on this species to determine its habitat requirements and to develop a recovery strategy. Work on the species should wait until additional resources are forthcoming, or other projects are completed and resources can be redirected to this species.

6.3.6. Prairie Long-tailed Weasel

COSEWIC status - Threatened Population trend - decreasing

Canadian population - unknown Total population - unknown

The prairie long-tailed weasel has declined drastically over the last 50 years to the point where it has been classified as threatened by COSEWIC. The declines result from loss of prey base through agricultural use of pesticides, loss of suitable denning habitat in close proximity to water caused by agricultural drainage of wetlands and construction of dams and impoundments, and trapping. Trapping continues with about 600 being taken in 1988 in Saskatchewan. There is a need to determine more accurately the distribution and numbers of this species and to develop conservation measures to ensure its continued survival. A recovery plan has not been drafted.

Future Plans:

- Participate in the development of a recovery plan.
- Develop a project outline and project sheet for CWS review and approval.
- Promote conservation of the species as part of the Prairie Conservation Action Plan.
- Determine distribution and abundance.
- Determine limitations to recovery.

Resource Implications:

- No budget has been assigned to work on this species.
- A minimum of $15K/year is required over several years to conduct surveys of distribution and abundance and to determine habitat requirements.

7. ADDITIONAL WORK REQUIRED

The work described above is primarily directed at reestablishing endangered species to the point where they can be removed from the COSEWIC list. There are three areas where additional work should be undertaken by CWS. Firstly, there is a need to do preventive work aimed at maintaining at least current levels of populations of other species which are, as yet, not endangered. The limited resources assigned to endangered species work prevents any direct attempt being made in this direction at this time. Indirectly, this is addressed through environmental education programs, talks, lectures, wildlife week displays, and newspaper articles, all of which help alert the public to the need for wildlife conservation and sustainable development, and thus the need to maintain populations of all wildlife, not just endangered species.

Secondly, it is particularly important that full species inventories be made on all federal lands, so that such lands can be managed and maintained in a manner which preserves their particular wildlife complement. An example is the 2590 square kilometre (1000 square mile) CFB Suffield which not only supports numerous soldiers, tanks, drilling rigs, pumping stations and domestic cattle, but is also home to many endangered and non-endangered species of wildlife. A comprehensive wildlife inventory of this area would identify which species are present, and in what numbers, and this knowledge would be useful, not only as an aid to managing Suffield, but as an aid to establish the need for additional wildlife preserves or conservation measures in other areas.

The third area where additional work is needed relates to other groups of wildlife included on the COSEWIC list. No work is being done at this time on any reptiles, amphibians or plants which occur in the Region. This is obviously unacceptable in the long run and conservation measures are needed to protect these groups from extirpation or extinction.

8. SUMMARY

In summary, the Section priorities for the next five years are:

High Priority

Whooping Crane, Wood Bison, Peregrine Falcon, Piping Plover, Peary Caribou, Swift Fox.

Medium Priority

Western Woodland Caribou, Polar Bears, Ferruginous Hawk, Burrowing Owl, Loggerhead Shrike, Predator/Prey studies, Prairie Raptor studies, Baird's Sparrow.

Low Priority

Mountain Plover, Eskimo Curlew, Trumpeter Swan, Greater Prairie Chicken, Black-footed Ferret, Prairie Long-tailed Weasel.

Future focus of attention is required to effectively address a direct ecosystem approach of prevention/protection, an inventory of the status of federal lands, and direction of some effort to reptiles, amphibians and plants.